

AMENDMENT AND PRESENTATION OF CLAIMS

Please replace all prior claims in the present application with the following claims, in which claims 1, 21, and 40 are currently amended, and no claims are canceled, withdrawn, or newly presented.

1. (Currently Amended) A method of communication in a network access system including an external processor and a programmable access device, said method comprising:

~~transmitting~~ receiving a control message from the external processor, ~~to~~ by the programmable

access device, to establish a configuration of the programmable access device;

receiving, by the programmable access device, messages from a first network external to the

network access system via a first network interface;

communicating a first subset ~~portion~~ of the received messages from the programmable access

device to the external processor for service processing in accordance with the configuration; and

routing a second subset ~~portion~~ of the received messages not communicated to the external

processor from the network access system via a second network interface different from

the first network interface to a second network external to the network access system,

wherein the second network is different from the first network.

2. (Previously Presented) The method of Claim 1, wherein:

transmitting a control message comprises transmitting a filter control message to establish a

configuration of a packet header filter in the programmable access device; and

communicating messages comprises communicating network messages filtered from a packet

flow by the packet header filter of the programmable access device.

3. (Original) The method of Claim 2, and further comprising limiting communication of network messages from the programmable access device to the external processor by sending the programmable access device a message setting message interface flags in the programmable access device.

4. (Original) The method of Claim 1, wherein:
transmitting a control message comprises transmitting a monitor control message to establish a configuration of a monitor in the programmable access device; and
communicating messages comprises communicating reporting messages from the programmable access device to the external processor in response to the configuration of the monitor.

5. (Original) The method of Claim 4, wherein transmitting a monitor control message comprises transmitting a control message to establish a threshold number of allowed retransmissions.

6. (Previously Presented) The method of Claim 4, wherein transmitting a monitor control message comprises transmitting a threshold activity level.

7. (Original) The method of Claim 1, wherein transmitting a control message comprises transmitting a policer control message to establish a configuration of a policer in the programmable access device.

8. (Original) The method of Claim 1, wherein transmitting a control message comprises transmitting a forwarding table control message to establish a configuration of a forwarding table in the programmable access device.

9. (Original) The method of Claim 8, wherein establishing a configuration of a forwarding table comprises establishing a new forwarding table in the programmable access device.

10. (Original) The method of Claim 1, wherein transmitting a control message comprises transmitting a control message to establish a configuration of a scheduler and one or more associated output buffers in the programmable access device.

11. (Original) The method of Claim 1, wherein transmitting a control message comprises transmitting a shaper control message to establish a configuration of a shaper in the programmable access device.

12. (Original) The method of Claim 1, wherein:

transmitting a control message from the external processor to the programmable access device to establish a configuration of the programmable access device comprises transmitting a control message specifying a source from which packets are not to be accepted; and

the method further comprises dropping packets from the specified source by the programmable access device.

13. (Original) The method of Claim 1, and further comprising in response to service processing by the external processor, injecting a packet from the external processor into packet flow through the programmable access device.

14. (Original) The method of Claim 1, wherein transmitting a control message from the external processor to the programmable access device to establish a configuration of the programmable access device comprises transmitting a session deletion control message; and the method further comprises the programmable access device deleting a session specified by the session deletion control message.

15. (Original) The method of Claim 1, and further comprising the external processor signaling network hardware to establish a network connection in response to receipt of a message from the programmable access device.

16. (Original) The method of Claim 1, and further comprising exchanging keepalive messages between the external processor and the programmable access device.

17. (Original) The method of Claim 1, wherein transmitting a control message comprises accessing a control processor on the external processor via an application programming interface.

18. (Original) The method of Claim 1, and further comprising in response to said control message, sending an acknowledgement from said programmable access device to said external processor.

19. (Original) The method of Claim 1, and further comprising communicating a state of a session from the programmable access device to the external processor in response to failure of a service controller servicing the session in the external processor.

20. (Original) The method of Claim 1, wherein transmitting a control message comprises transmitting a control message via an intermediate communication network.

21. (Currently Amended) A network access system, comprising:

an external processor that transmits a control message specifying a configuration; and

a programmable access device that receives messages from a first network external to the network access system via a first network interface, and that, responsive to the control message, establishes the configuration specified by the control message and communicates a first ~~portion~~ subset of the received messages to the external processor for service processing in accordance with the configuration, and forwards a second ~~portion~~ subset of the received messages not communicated to the external processor for routing, via a second network interface different from the first network interface, to a second network external to the network access system, wherein the second network is different from the first network.

22. (Original) The network access system of Claim 21, wherein:

the programmable access device includes a packet header filter;

the control message comprises a filter control message that establishes a configuration of the packet header filter; and

the messages communicated by the programmable access device comprise network messages filtered from a packet flow by the packet header filter of the programmable access device.

23. (Original) The network access system of Claim 22, said external processor comprising means for limiting communication of network messages from the programmable access device to the external processor by sending the programmable access device a message setting message interface flags in the programmable access device.

24. (Original) The network access system of Claim 21, wherein:

the programmable access device comprises a monitor for network traffic;

the control message comprises a monitor control message that specifies a configuration of the monitor; and

the messages communicated by the programmable access device comprise reporting messages in accordance with the configuration.

25. (Original) The network access system of Claim 24, wherein the control message specifies a threshold number of allowed retransmissions.

26. (Original) The network access system of Claim 24, wherein the monitor control message specifies a threshold activity level.

27. (Original) The network access system of Claim 21, wherein:

the programmable access device comprises a policer, and

the control message comprises a policer control message that specifies a configuration of the policer.

28. (Original) The network access system of Claim 21, wherein the control message comprises a forwarding table control message that specifies a configuration for a forwarding table.

29. (Original) The network access system of Claim 21, wherein:

the programmable access device comprises one or more output buffers for outgoing packets and an associated scheduler; and
the control message specifies a configuration of the scheduler and the one or more output buffers.

30. (Original) The network access system of Claim 21, wherein:

the programmable access device comprises a shaper; and
the control message comprises a shaper control that specifies a configuration of the shaper.

31. (Original) The network access system of Claim 21, wherein:

the control message specifies a source from which packets are not to be accepted; and
the programmable access device comprises means for dropping packets from the specified source.

32. (Original) The network access system of Claim 21, said external processor comprising means, responsive to service processing by the external processor, for injecting a packet into packet flow through the programmable access device.

33. (Original) The network access system of Claim 21, wherein the control message comprises a session deletion control message; and the programmable access device comprises means for deleting a session specified by the session deletion control message.

34. (Original) The network access system of Claim 21, wherein the external processor comprises a signaling processor that signals network hardware to establish a network connection in response to a message received from the programmable access device.

35. (Original) The network access system of Claim 21, said external processor and said programmable access device each comprising means for exchanging keepalive messages.

36. (Original) The network access system of Claim 21, wherein the external processor comprises a control processor that outputs said control message and an application programming interface through which said control processor is accessed.

37. (Original) The network access system of Claim 21, said programmable access device comprising means, responsive to said control message, for sending an acknowledgement to said external processor.

38. (Original) The network access system of Claim 21, wherein:

the external processor comprises a plurality of service controllers that provide service processing; and

the programmable access device comprises means for communicating a state of a session to the external processor in response to failure of a service controller servicing the session.

39. (Original) The network access system of Claim 21, and further comprising a network coupling the external processor and the programmable access device.

40. (Currently Amended) A distributed router comprising:

a first network interface through which packets are communicated with a first network;

a second network interface different from the first network interface through which packets are communicated with a second network different from the first network;

a programmable access device configured to input messages from the first network via the first network interface; and

an external processor configured to receive, from the programmable access device, a first ~~portion~~ subset of the input messages and to transmit a control message to the programmable access device specifying a configuration to control the selection of the first ~~portion~~ subset,

wherein the programmable access device forwards a second ~~portion~~ subset of the input messages not received by the external processor for routing via the second network interface to the second network.